

BACKGROUND

Subcutaneous emphysema can result from infectious, traumatic, spontaneous or surgical etiologies. Most cases are benign and self-limiting. However, without proper decompression, severe cases may lead to acute airway compromise.

CASE PRESENTATION

70 year old gentleman presented to the hospital for VATS to resect right upper lobe lung nodule suspicious for malignancy. Past medical history was significant for hypertension, COPD, and OSA. On post-op day 5, anesthesia team was consulted for possible airway intervention due to persistent subcutaneous emphysema. Chest x-ray show severe diffuse subcutaneous emphysema and a moderate right pneumothorax. On initial bedside exam, patient was sitting on the edge of bed with no apparent distress. Patient could speak full sentences without voice changes but reported mild shortness of breath. Extensive tissue distension was noted on patient’s eyelids, face, neck, chest, upper extremities, and abdomen. Patient had two right-sided chest tubes on suction. Patient was normotensive with 92% oxygen saturation on 4L nasal cannula. A second exam two hours later show no change and patient was in good spirits after his dinner. Three hours after the second exam, anesthesia team was called to bedside after patient had increased work of breathing and reported “pressure on the throat”. Decision was made to perform awake fiber optic intubation in the operating room with a surgeon available for potential surgical airway. As the patient was ready to move to the operating room, patient became unresponsive and pulseless within seconds after his chest tubes were disconnected from suction. CPR started immediately. LMA was placed with a colorimetric detector confirming end-tidal CO2. Chest tubes were back to suction. ROSC was achieved after 7 minutes of CPR. A bedside tracheostomy was performed by the surgeon and patient was transferred to ICU. Patient’s conditions gradually improved at ICU. On post-op day 9, patient underwent VATS for talc slurry pleurodesis. Subcutaneous emphysema resolved and patient recovered well afterwards.

CONCLUSIONS

Although the cause of the patient’s cardiac arrest has not been pinpointed, the acute airway compromise was likely related to soft tissue swelling and compression to the airway.

Previous case reports of severe subcutaneous emphysema have described unsuccessful attempts with laryngoscopy and fiber optic intubation due to bulging vocal cords occluding the airway and altered posterior oropharyngeal anatomy. This case highlights the importance of close monitoring for patients with severe subcutaneous emphysema and careful planning for airway interventions.

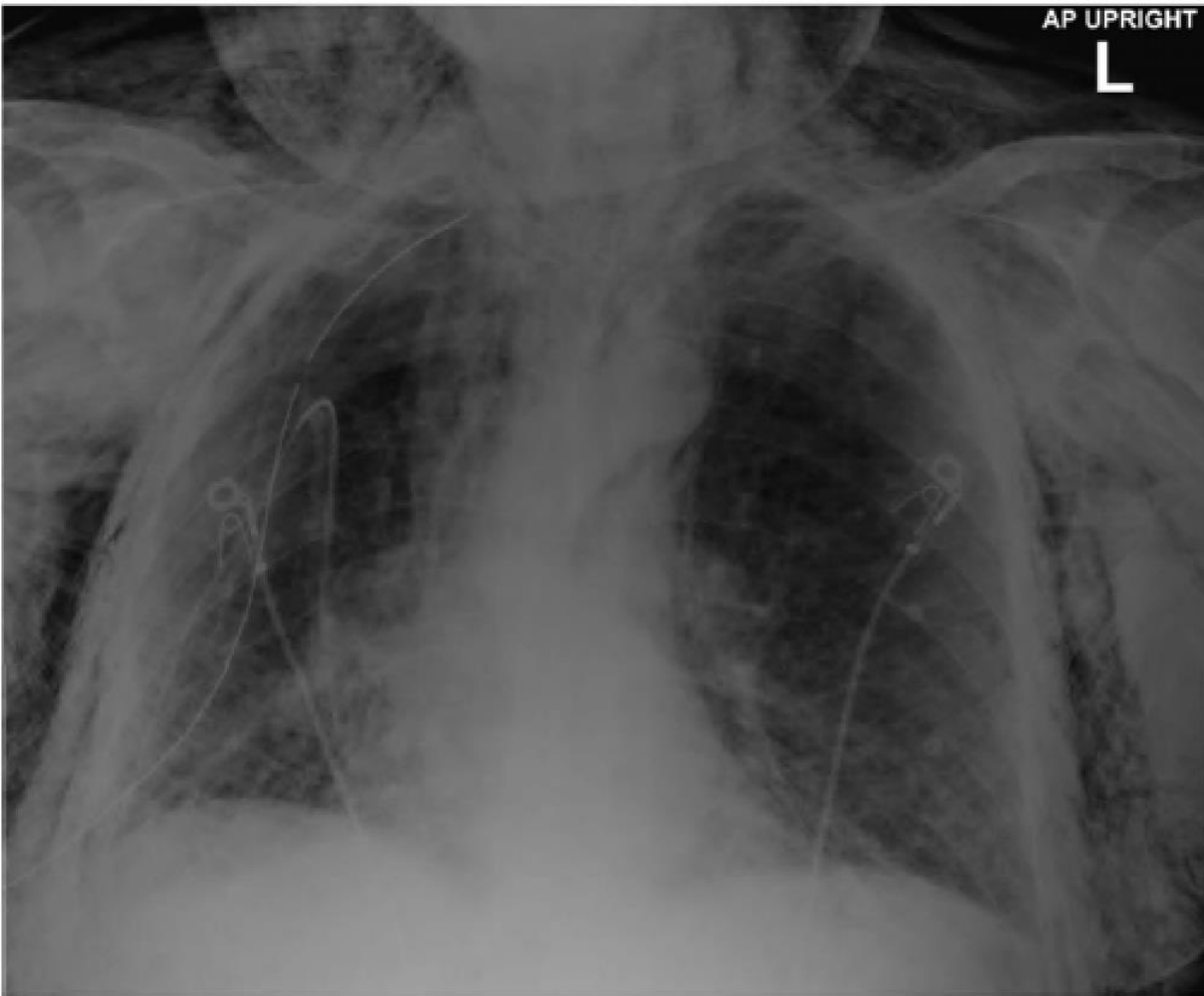


Figure 1. Chest X-ray Demonstrating Severe Subcutaneous Emphysema on Post-op Day 5